Mark Scheme (Results)

January 2024

Pearson BTEC Nationals
In IT (31760H)
Unit 1: Information Technology Systems

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Unit 1: Information Technology Systems

General Marking Guidance

All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.

Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.

All marks on the mark scheme should be used appropriately.

All marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if a candidate's response is not worthy of credit according to the mark scheme.

Where some judgment is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

When examiners are in doubt about applying the mark scheme to a candidate's response, the team leader must be consulted.

Crossed-out work should be marked UNLESS the candidate has replaced it with an alternative response.

Phonetic spelling should be accepted.

Specific marking guidance

The marking grids have been designed to assess learner work holistically. Rows in the grids identify the assessment focus/outcome being targeted. When using a marking grid, the 'best fit' approach should be used.

Examiners should first make a holistic judgement on which band most closely matches the learner's response and place it within that band. Learners will be placed in the band that best describes their answer.

The mark awarded within the band will be decided based on the quality of the answer, in response to the assessment focus/outcome and will be modified according to how securely all bullet points are displayed at that band.

Marks will be awarded towards the top or bottom of that band, depending on how they have evidenced each of the descriptor bullet points.

BTEC Next Generation Mark Scheme

IT Unit 1 January 2024

Question Number	Answer	Mark
1ai	Award **two** marks from: • Computer misuse • Police and justice (computer misuse) • Copyright • Data protection / GDPR • Consumer rights. **Do Not Accept**: Equality Act (the question relates to legislation when using IT systems) Accept any other appropriate response.	2

Question Number	Answer	Mark

1aii	Award **one** mark for a health and safety <u>issue</u> and **one** additional mark for a <u>method</u> to reduce the issue to a maximum of four marks:
	
	• to avoid eye strain (1)
	   ○ adjusting screen brightness (1)
	   ○ suitable lighting (1)
	   ○ use of window blinds (1)
	   ○ regular breaks (1)
	   ○ HPIEs monitors (1)
	   ○ provide regular eye tests / glasses (1)
	• to avoid repetitive Strain Injury (RSI) (1)
	   ○ ergonomic keyboards (1)
	   ○ wrist rests (1)
	• to reduce back / neck strain (1)
	   ○ ergonomic chairs (1)
	   ○ footrests/supports (1)
	   ○ adjustable monitors (1)
	   ○ regular breaks (1)
	• to prevent personal injury / safety hazards (1)
	   ○ ensure no trailing wires (1)
	   ○ ensure no food/drink around computer (1)
	• to ensure staff well-being (1)
	   ○ provide suitable workstations (1)
	   ○ training (1)
	
	DO NOT AWARD: Only award the same expansion issue once, e.g. regular breaks, training, adjustable monitor, etc.
	
	Accept any other appropriate response.
		4

Question Number	Answer	Mark
1b	Award **one** mark for the identification and **one** additional mark for the appropriate expansion to a maximum of four marks:	4
	social media platforms (1) because advertisements / recommendations can be based on browsing history / interests / preferences (1)	
	email / text messages (1) because marketing can be based on previous purchases / preferences (1)	
	(online) advertisements (1) because they can set them based on demographics (1)	
	DO NOT ACCEPT:	
	Cookies because that is a method of collecting data.	
	Preferences more than once	
	Accept any other appropriate response.	

Question Number	Answer	Mark
1c	Award **one** mark for identification and **one** additional mark for appropriate expansion.	2
	Identification - Ensure security (1)	
	○ to protect payment information (1) ○ to stop card details being read / stop shoulder surfers seeing card details (1)	
	Accept any other appropriate response.	

Question Number	Answer	Mark
1d	Award **one** mark for the identification and **one** additional mark for the appropriate expansion to a maximum of four marks: Reduced costs (1) because no printing, packaging and postage is required (1) Prevents counterfeit tickets being produced (1) which will reduce fraud / touting (1) More efficient for the company (1) because the process of issuing tickets can be automated / no reprinting of tickets required (1) Supports last minute ticket sales (1) because no delay sending out/picking up printed tickets (1) **NOTE**: Must be a benefit to the company and not the customer or environment. Accept any other appropriate response.	4

Question Number	Indicative content
1e	Answers will be credited according to the learner's demonstration of knowledge and understanding of the material, using the indicative content and level descriptors below. The indicative content that follows is not prescriptive. Answers may cover some/all of the indicative content but should be rewarded for other relevant answers. Learners **discuss** the benefits and drawbacks to the customer of purchasing theatre tickets online. Benefits: • Convenience: customers can make the booking from anywhere/anytime • Create accounts • Save personal details for quicker/easier purchase of tickets in the future • Review account history / previous bookings • Can receive promotional offers from the company with discounts and rewards • Can join the loyalty scheme for future rewards • Can view seating layout for the venue(s) • Possible discounts for purchasing online • More payment security when using a trusted website (https) Drawbacks: • Internet connection is required; customers could be in a blackspot / no mobile data/wifi • Booking errors if customers make the booking in a hurry and do not double check the information entered • Technical knowledge is needed for online bookings • Website unavailable due to amount of traffic • Commission is sometimes taken for online bookings • Possible increase of fraud if purchased from a less trusted website • Requires the use of a bank card Ignore travelling - irrelevant

Mark scheme (award up to 8 marks) refer to the guidance on the cover of this document for how to apply levels-based mark schemes*.

Level	Mark	Descriptor
Level 0	0	No rewardable material.
Level 1	1–3	- Demonstrates isolated elements of knowledge and understanding - There will be major gaps or omissions - Few of the points made will be relevant to the context in the question - Limited discussion which contains generic points - Little or no consideration of different aspects
Level 2	4-6	- Demonstrates some accurate knowledge and understanding - There will be some gaps or omissions - Some of the points made will be relevant to the context in the question, but the link will not always be clear - Displays a partially developed discussion which considers some different aspects - There will be some consideration of how they interrelate
Level 3	7-8	- Demonstrates mostly accurate and detailed knowledge and understanding - There will be minor gaps or omissions - Most of the points made will be relevant to the context in the question, and there will be clear links - Displays a well-developed and logical discussion which clearly considers a range of different aspects - Clearly shows how they interrelate

Question Number	Answer	Mark
2ai	Award **one** mark for the identification and **one** additional mark for the appropriate expansion to a maximum of four marks: Wireless connectivity comes in-built in most personal devices (1) which makes them more versatile and convenient (1) Poppy does not have to physically connect the heart monitor to the tablet (1) because cables are not required (1) Allow devices to connect automatically (when within range) (1) with no user involvement (1) Accept any other appropriate response.	4

Question Number	Answer	Mark
2aii	Award **one** mark for the identification and **one** additional mark for the appropriate expansion to a maximum of four marks: • Unauthorised access / hacker (1) because the data could be stolen/deleted/edited without permission (1) • Viruses/malware could be introduced (1) which means the data could be corrupted (1) • (Accidental) damage (to the tablet) (1) which could ruin the hard disk drive (1) • Theft of tablet / hardware failure / damage (1) which could result in Poppy losing data **if it wasn't backed up** (1) **ACCEPT**: Mix and match if the response makes sense. Accept any other appropriate response.	4

Question Number	Answer	Mark
2b	Award **one** mark for each up to a maximum of **four** marks. • (Private and Public) keys are generated (1) • Sending and receiving computers exchange (public) keys (1) • Uses an encryption algorithm (1) • To scramble the data (1) • Transmitted to receiving client with a decryption key (1) • Receiving client uses the (private) key to unscramble/decrypt the data (1) Accept any other appropriate response.	4

Question Number	Answer	Mark
2c	Award **one** mark for the identification and **one** additional mark for the appropriate expansion to a maximum of four marks: Secure (1) because all the **devices** are authorised before data sharing / they use data encryption (1) Reliable (1) because if you use this type of data connection within 10 metres your network is stable (and reliable) (1) No wires needed / not wired / wireless (1) because she can use of Bluetooth/WiFi (1) Improved portability (1) so that she can establish a connection wherever / whenever (1) Cost effective (1) no extra data charges are involved (1) (Automatic) data synchronicity (1) so that this can be done between many devices (at the same time) (1) Ease of set up (1) because there is no (advanced) skills required / no training needed (1) **DO NOT ACCEPT**: Connecting/linking devices (in the question) Accept any other appropriate response.	4

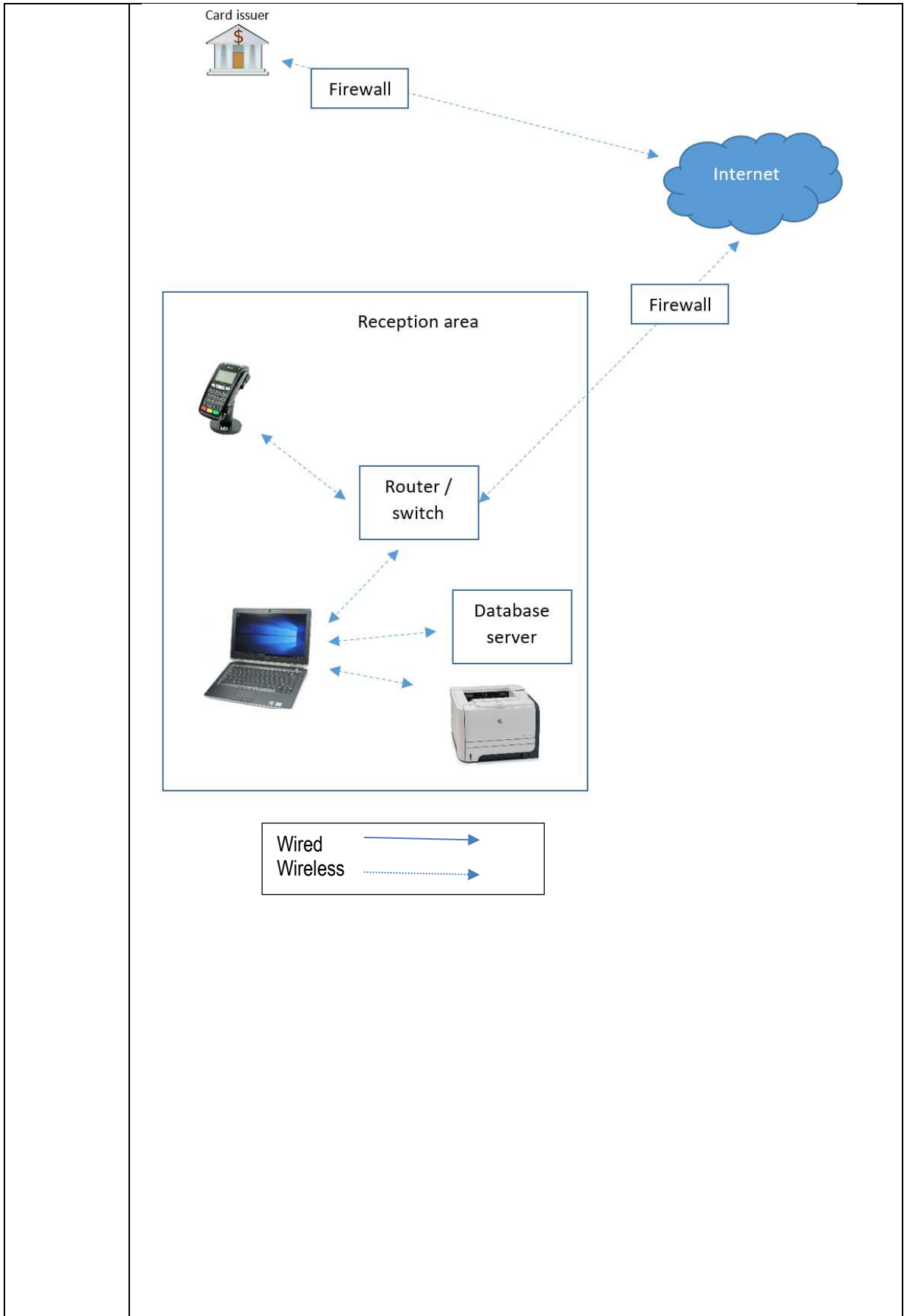| Question Number	Indicative content
2d	Answers will be credited according to the learner's demonstration of knowledge and understanding of the material, using the indicative content and level descriptors below. The indicative content that follows is not prescriptive. Answers may cover some/all of the indicative content but should be rewarded for other relevant answers. Learners to discuss information, other than location, that can be calculated using GPS. Speed – the team can monitor current and average speeds to check progress and encourage to go faster/slower Pace – they can monitor the runner's pace Estimated time of arrival (ETA) – they can check the estimated time she will be finishing the run Amount of time remaining until finished – they can keep track of how long the runner has until she finishes the run Distances travelled / remaining – they can see how far she has travelled and how much she has remaining to complete **Quickest** route to destination. Suggests new/alternative route(s) to avoid congestion, road works. Weather predictions

Mark scheme (award up to 6 marks) refer to the guidance on the cover of this document for how to apply levels-based mark schemes*.		
Level	**Mark**	**Descriptor**
Level 0	0	No rewardable material.
Level 1	1–2	- Demonstrates isolated elements of knowledge and understanding - There will be major gaps or omissions - Few of the points made will be relevant to the context in the question - Limited discussion which contains generic points - Little or no consideration of different aspects
Level 2	3-4	- Demonstrates some accurate knowledge and understanding - There will be some gaps or omissions - Some of the points made will be relevant to the context in the question, but the link will not always be clear - Displays a partially developed discussion which considers some different aspects - There will be some consideration of how they interrelate
Level 3	5-6	- Demonstrates mostly accurate and detailed knowledge and understanding - There will be minor gaps or omissions - Most of the points made will be relevant to the context in the question, and there will be clear links - Displays a well-developed and logical discussion which clearly considers a range of different aspects - Clearly shows how they interrelate

Question Number	Indicative content
3a	A diagram of a potential system / integration of IT systems and connections used to meet the requirements of the scenario. Example response – note this is indicative only. Credit should be given for a diagram that meets the requirements of the given problem. Diagram may include: **Devices:** Reception area: - Laptop - Database server - Card payment system - Printer - Router - Firewall - Switch **Connection types to be used** Internet access Laptop Card payment system – (link to bank for real time transactions) Printer – wired / wireless / Bluetooth **Annotations:** See attached diagram for sample solution.

Card issuer

Firewall

Internet

Reception area

Firewall

Router / switch

Database server

Wired	
Wireless	

Level	Descriptor
0 marks	No rewardable material
1-2 marks	Diagram provides partial coverage of devices. Limited connections are shown Diagram includes some annotations of the connection types used.
3-4 marks	Diagram provides coverage of mostly appropriate devices. Connections are shown which meet **most** requirements of the scenario. Diagram includes some annotations of connection types used to meet the majority of the requirements of the scenario, but these may not always be the most efficient.
5-6 marks	Diagram provides **thorough** coverage of appropriate device which fully meet the requirements of the scenario. Connection are shown which **fully** meet the requirements of the scenario. Diagram includes detailed and **accurate** annotations of devices and connection types used to meet the requirements of the scenario.

Question Number	Answer	Mark
3bi	Award **one** mark for the identification and **one** additional mark for the appropriate expansion to a maximum of four marks: Ease of use / convenience (1) because there is no requirement to **remember** pin codes / they don't have to carry other payment methods (cash) (1) – NOT EASY ON ITS OWN Save time / speed (1) because you do not need to **enter** a pin / insert card into card reader / wait for change (1) More hygienic (1) because you do not have to touch a keypad which might have germs (1) **Smartphone** payments are more secure (1) because you have to use biometrics / unlock your phone to pay (1) **DO NOT ACCEPT**: Easy on its own. Mix and match **ONLY ACCEPT**: Smartphones in relation to MP4. Accept any other appropriate response.	4

Question Number	Answer	Mark
3bii	Award **one** mark for the identification and **one** additional mark for the appropriate expansion to a maximum of four marks: Ease of Use / intuitiveness / user experience (1) to make it obvious where the user enters data / use **standard** icons / navigation methods (1) Accessibility (1) make text readable / simple / understandable / concise / bigger buttons / language option (1) Error reduction (1) so appropriate data validation techniques can be included (1) Functionality (1) by providing ways of 'undoing' incorrect responses (1) Accept any other appropriate response.	4

Question Number	Indicative content
3c	Answers will be credited according to the learner's demonstration of knowledge and understanding of the material, using the indicative content and level descriptors below. The indicative content that follows is not prescriptive. Answers may cover some/all of the indicative content but should be rewarded for other relevant answers. Learners will discuss factors affect the use and selection of online systems. • Costs: no need to pay for technical support, this will be covered in the subscription to the cloud storage provider. • Data stored on the cloud is automatically backed up and instantly retrievable. • Storage capacity can be scaled up and down to fit the needs of the business. • Will give robust disaster recovery, which would otherwise be unlikely due to lack of finance and expertise • Reduces the implications/security risks of lost or stolen laptops and other mobile devices. • Improved security arises from the reduction in the need to send files via external methods such as email. • Sharing data / collaboration. Benefits to owner: • System can be used anywhere with an **internet connection**; enables access to data when away from the garage. • System is available anytime • Will be able to access data on a range of devices (synced) Disadvantages to owner: • Must have an **internet connection** • Security implications for the owner of introducing a third party. • Might need training on how to use the system. • Impact of downtime if the system is unavailable or being updated.

Level	Mark	Descriptor
Mark scheme (award up to 8 marks) refer to the guidance on the cover of this document for how to apply levels-based mark schemes*.		
Level	Mark	Descriptor
Level 0	0	No rewardable material.
Level 1	1–3	- Demonstrates isolated elements of knowledge and understanding - There will be major gaps or omissions - Few of the points made will be relevant to the context in the question - Limited discussion which contains generic points - Little or no consideration of different aspects
Level 2	4-6	- Demonstrates some accurate knowledge and understanding - There will be some gaps or omissions - Some of the points made will be relevant to the context in the question, but the link will not always be clear - Displays a partially developed discussion which considers some different aspects - There will be some consideration of how they interrelate
Level 3	7-8	- Demonstrates mostly accurate and detailed knowledge and understanding - There will be minor gaps or omissions - Most of the points made will be relevant to the context in the question, and there will be clear links - Displays a well-developed and logical discussion which clearly considers a range of different aspects - Clearly shows how they interrelate

Question Number	Answer

4a	The indicative content that follows is not prescriptive. Answers may cover some/all of the indicative content but should be rewarded for other relevant answers.
	
	Learners **discuss** the factors that the advertising company will need to consider before proceeding with the OS upgrade. The learners were given these factors in the question: **costs (other than licences), implementation, training, compatibility, support**.
	
	Needs to consider whether the OS upgrade is necessary/worthwhile.
	
	Is the current system supported?
	Unsupported systems will:
	• No longer receive product support, bug fixes, and patch releases
	• Make the system vulnerable to unauthorised access/malicious attacks
	• Result could be loss of data
	• Impact on storage of customers' data / DPA infringement
	Upgrading the OS will have implications:
	• Compatibility with current:
	    o Application software
	    o Communication software
	    o Security software
	    o Hardware
	• Cost of upgrading current hardware and software if compatibility issues
	• Implementation:
	    o Who will perform the upgrade, in-house or external
	    o When will the installation take place
	    o Downtime
	• Staff Training:
	    o Who will perform the training, in-house or external
	    o When will the installation take place
	    o Cost of training

Mark scheme (award up to 10 marks) refer to the guidance on the cover of this document for how to apply levels-based mark schemes*.		
Level	**Mark**	**Descriptor**
Level 0	0	No rewardable material.
Level 1	1–4	- Demonstrates isolated elements of knowledge and understanding - There will be major gaps or omissions - Few of the points made will be relevant to the context in the question - Limited discussion which contains generic points - Little or no consideration of different aspects
Level 2	5-7	- Demonstrates some accurate knowledge and understanding - There will be some gaps or omissions - Some of the points made will be relevant to the context in the question, but the link will not always be clear - Displays a partially developed discussion which considers some different aspects - There will be some consideration of how they interrelate
Level 3	8-10	- Demonstrates mostly accurate and detailed knowledge and understanding - There will be minor gaps or omissions - Most of the points made will be relevant to the context in the question, and there will be clear links - Displays a well-developed and logical discussion which clearly considers a range of different aspects - Clearly shows how they interrelate

Question Number	Indicative content
4b	Answers will be credited according to the learner's demonstration of knowledge and understanding of the material, using the indicative content and level descriptors below. The indicative content that follows is not prescriptive. Answers may cover some/all of the indicative content but should be rewarded for other relevant answers. Learners analyse ways the advertising company and the staff can reduce the impact on the environment. **Company** • Upgrading components rather than purchasing new systems reduces waste that may be sent to landfill • Ensure the safe disposal of IT equipment when necessary. Old equipment will need to be disposed of responsibly to avoid harmful materials being exposed to the environment • Would follow WEEE –Waste Electrical and Electronic Equipment guidelines • Recycling the computers so the materials can be reused, and will reduce the impact of manufacturing materials from scratch, and to prevent harmful materials being put in the ground • Donate old computers so they can be used by someone else • Use computers with high energy rating to significantly reduce the amount of electricity the company uses **Staff** • Ensure computers are turned off when not in use and not left on standby • Set the computer to automatically switch off devices after a period of inactivity • Set auto power/sleep mode when computers are not in use to reduce the amount of electricity used • Ensure printer cartridges are disposed of correctly and not thrown in normal waste • Keep paper usage to a minimum, and any paper used needs to be recycled appropriately

Level	Mark	Descriptor
Mark scheme (award up to 12 marks) refer to the guidance on the cover of this document for how to apply levels-based mark schemes*.		
Level	**Mark**	**Descriptor**
Level 0	0	No rewardable material.
Level 1	1–4	- Demonstrates isolated knowledge and understanding, there may be major gaps or omissions - Breaks the situation down into component parts and a few of the points made will be relevant to the context in the question - Limited analysis which contains generic assertions rather than interrelationships or linkages
Level 2	5-8	- Demonstrates some accurate knowledge and understanding, with few minor omissions/any gaps or omissions are minor - Breaks the situation down into component parts and some of the points made will be relevant to the context in the question - Displays a partially developed analysis which considers some interrelationships or linkages but not always sustained
Level 3	9-12	- Demonstrates mostly accurate and thorough/detailed knowledge and understanding - Breaks the situation down into component parts and most of the points made will be relevant to the context in the question - Displays a well-developed and logical analysis which clearly considers interrelationships or linkages in a sustained manner